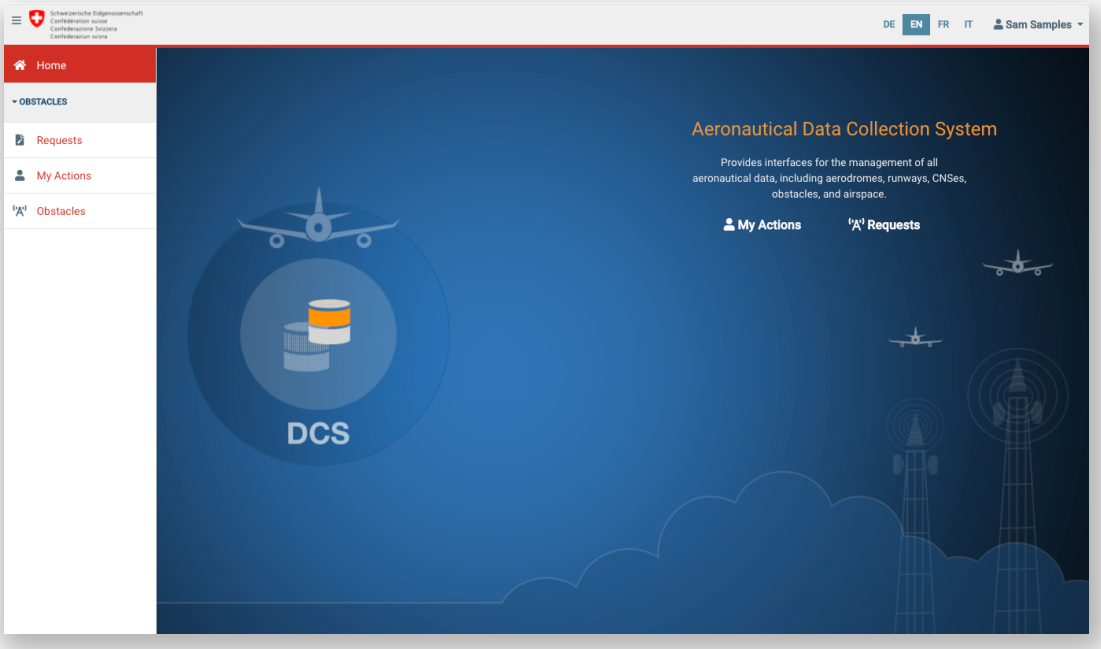
Aeronautical Data Collection Service Specification



DPS: Simplified_Active_Obstacle data in csv format

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DCS Requirement	Filtered Obstacle export csv
ID	15.1
Planned Release	2.3
Status	**RELEASED**
Revision	

This data set contains simplified geometries and does not include all recorded points of line obstacles.

DO NOT USE THIS DATA FOR 3-D APPLICATIONS

1 Introduction

Obstacle data is available as a CSV text file (DSV to be more precise). The CSV is one format of the delivery of active obstacles to the data users and as a base for creating and updating aeronautical information products (AIP and charts). It has identical content as the corresponding KMZ file.

The simplification of the line geometries allows to reduce the amount of data in the file without noticeably degrading the graphical representation of the obstacle on a moving map display.

2 Definitions and Abbreviations

Simpliefied_Active_Obstacles	The file Simplified_Active_Obstacles_<yyyy-mm-dd_hhmmss+…>.csv
CSV	Comma Separated Values A CSV-File is a text file with a tabular structure where the values in a row are separated by commas. The term CSV-File is also commonly used for DSV files where the delimiter character separating the values in each row does not have to be a comma. --> DSV
DCS	Data Collection System
DSV	A format that uses Delimiter Separated Values to store a tabular data structure by separating the values in each row with specific delimiter characters. The character chosen as a delimiter is the vertical bar | (also called pipe character) which has no occurrence in the data fields.
effectiveDate	The date of the last change of the obstacle. This change can be: • The obstacle has been activated or inactivated • Some properties of the obstacle have changed (e.g geometry, marking or lighting)
OMS	Obstacle Management System (The system in use at FOCA before its replacement by DCS)
T_{export}	The instance in time of the export
UUID	Universally Unique Identifier, a 128 bit number that is used to identify information across a computer system.

3 Data Product Specifications

ID	Specification	
15.1.01	The file **Simplified_Active_Obstacle.zip** contains: • **Simplified_Active_Obstacle_<yyyy-mm-dd_hhmmss+….>.csv** containing the obstacles in a tabular structure. • Simplified_Active_Obstacle_<yyyy-mm-dd_hhmmss+….>.csv.sha512 containing a SHA-512 checksum of the Simplified_Active_Obstacle_<yyyy-mm-dd_hhmmss>.csv file	
15.1.02	The file is created (at T_{export}) every day at approx. 00:00 UTC	
15.1.04	**<yyyy-mm-dd_hhmmss>** in the Filename is the datetime of T_{export}	
15.1.05	**Data content:** • All man-made obstacles reported as being active at T_{export} • Trees (VEGETATION) in the vicinity of airports that are published on the Visual Approach Chart (VAC) or in the AD-INFO section (aerodrome chart) of the VFR Manual. • Obstacles of type Linestring are simplified (generalized) and contain only points that are relevant for a cartographic representation.	
15.1.30	Linestring simplification is done with a Douglas-Peucker algorithm	This is a 2D-Filter
15.1.31	The simplification parameter ε (epsilon) is 25 m.	This means that the simplified line geometries are not deviating more than ε from the true geometry.
The content of the file is specified below		
15.1.06	Each obstacle is provided as one or more lines, each of them representing one obstacle point.	
15.1.07	For polygon obstacles the first and last points are identical	
15.1.08	The field UUID contains a type 4 universally unique identifier	UUID
15.1.09	The field REC_NR contains a sequential number of the obstacle point (1..n)	REC_NR
15.1.10	The field NAME contains the Registration Number. The Registration Number is a 10 character text string. There are two types for registration numbers supported: • <mmm><CC><nnnnn> : for obstacls transferred from OMS	NAME

ID	Specification	
	• <CC><zzzzzzzz> : for obstacles collected in DCS Where: • <mmm> is a 3 digit number • <nnnnn> is a 5 digit number • <zzzzzzzz> is a 8 digit number • <CC> is the two letter abbreviation for the Canton (of the first point of the obstacle) or “HL” for power lines or “UN” for obstacles outside Switzerland.	
15.1.11	The field AIRPORT contains the location indicator of the referenced airport if the obstacle is within the obstacle limitation surface perimeter	AIRPORT
15.1.12	The field TYPE indicates the obstacle type according to AIXM 5.1.1. The following types are currently used: • BRIDGE • BUILDING • CABLE_CAR • CATENARY • CRANE • POLE • STACK • TRANSMISSION_LINE • VEGETATION • WINDMILL	TYPE
15.1.13	The field STATUS is A for: • A = active (the obstacle is present)	STATUS
15.1.14	The field GEO_LON contains the longitude of the obstacle point in decimal degrees referenced to WGS-84 (epsg:4326).	GEO_LON
15.1.15	The field GEO_LAT contains the latitude of the obstacle point in decimal degrees referenced to WGS-84 (epsg:4326).	GEO_LAT
15.1.16	The field TOP_AMSL contains the mean sea level elevation of the top of the obstacle point in meters referring to Swiss LN02 (epsg:5728)	TOP_AMSL
15.1.17	The field HEIGHT_AGL contains the maximum height of the obstacle above the ground in meters. For Point Obstacles this is height of the structure above ground. For Line and Polygon Obstacles the HEIGHT_AGL of all points is identical and is the maximum height of the obstacle above the ground .	HEIGHT_AGL
15.1.18	The field RADIUS contains the radius in meters of an obstacle of circular shape (e.g. boom length of a crane)	RADIUS
15.1.19	The field WEF contains the effective date of the obstacle (the date of the last update of the obstacle)	WEF
15.1.20	The field MARKING contains the marking information:	MARKING

ID	Specification	
	• NONE : no marking • RED_WHITE_RED • ORANGE_CANVAS • ORANGE_SPHERES • CABLE_WARNER • MARKED (type of marking unknown)	
15.1.21	The field LIGHTING contains the lighting information: • NONE : no lighting • LOW : Low intensity light • MEDIUM : Medium intensity light • HIGH : High intensity light (can have low intensity light during the night) • LIGHTED (intensity of lighting unknown)	LIGHTING
15.1.22	The field GROUP contains the following information: • YES : the obstacle represents multiple obstacles in the immediate vicinity • NO : the obstacle is representing a single obstacle	GROUP
15.1.23	The field STYLE indicates the style to apply as graphical representation of the obstacle. See Obstacle Style Map	STYLE
15.1.28	The field SMALL indicates small obstacles near airports: • YES : If the obstacle is located within the obstacle limitation surface perimeter AND the max. height above ground level is less than 60 m inside built-up area or less than 25 m outside built-up area. • NO : otherwise	SMALL
Encoding and format		
15.1.24	The encoding is UTF-8	
15.1.25	The format is a *DSV* text file with the vertical bar | (hex 7c also called pipe) as the delimiter character.	
15.1.26	The line separator is the new line character (hex a)	
15.1.27	The first line contains the field names.	

4 Obstacle Style Map

Style Code	Style Rule				
	AIXM type	**Lighting** (yes/no)	**Marking** (yes/no)	**Min. height AGL**	**Group** (yes/no)
ms_pole	POLE	NONE	n/a	n/a	no
ms_pole_group	POLE	NONE	n/a	n/a	yes
ms_pole_lighted	POLE	LIGHTED, LOW or HIGH	n/a	n/a	no
ms_pole_group_lighted	POLE	LIGHTED, LOW or HIGH	n/a	n/a	yes
ms_crane	CRANE	NONE	n/a	n/a	no
ms_crane_group	CRANE	NONE	n/a	n/a	yes
ms_crane_lighted	CRANE	LIGHTED, LOW or HIGH	n/a	n/a	no
ms_crane_group_lighted	CRANE	LIGHTED, LOW or HIGH	n/a	n/a	yes
ms_stack	STACK	NONE	n/a	n/a	no
ms_stack_group	STACK	NONE	n/a	n/a	yes
ms_stack_lighted	STACK	LIGHTED, LOW or HIGH	n/a	n/a	no
ms_stack_group_lighted	STACK	LIGHTED, LOW or HIGH	n/a	n/a	yes
ms_windmill	WINDMILL	NONE	n/a	n/a	no
ms_windmill_group	WINDMILL	NONE	n/a	n/a	yes
ms_windmill_lighted	WINDMILL	LIGHTED, LOW or HIGH	n/a	n/a	no
ms_windmill_group_lighted	WINDMILL	LIGHTED, LOW or HIGH	n/a	n/a	yes
ms_building	BUILDING	NONE	n/a	n/a	no
ms_building_group	BUILDING	NONE	n/a	n/a	yes

Style Code	Style Rule				
	AIXM type	**Lighting** (yes/no)	**Marking** (yes/no)	**Min. height AGL**	**Group** (yes/no)
ms_building_lighted	BUILDING	LIGHTED, LOW or HIGH	n/a	n/a	no
ms_building_group_lighted	BUILDING	LIGHTED, LOW or HIGH	n/a	n/a	yes
ms_bridge	BRIDGE	NONE	n/a	n/a	n/a
ms_bridge_lighted	BRIDGE	LIGHTED, LOW or HIGH	n/a	n/a	n/a
ms_high_pole_lighted	POLE, BUILDING	LIGHTED, LOW or HIGH	n/a	height >= 150 m	no
ms_high_pole_group_lighted	POLE, BUILDING	LIGHTED, LOW or HIGH	n/a	height >= 150 m	yes
ms_tree	VEGETATION	n/a	n/a	n/a	no
ms_tree_group	VEGETATION	n/a	n/a	n/a	yes
ms_line	TRANSMISSION_LINE	n/a	NONE	n/a	n/a
ms_line_spheres	TRANSMISSION_LINE	n/a	MARKED or ORANGE_SPHERES	n/a	n/a
ms_cable	CATENARY, CABLE_CAR	n/a	NONE	n/a	n/a
ms_cable_spheres	CATENARY, CABLE_CAR	n/a	ORANGE_SPHERES	n/a	n/a
ms_cable_warner	CATENARY, CABLE_CAR	n/a	MARKED or CABLE_WARNER	n/a	n/a
ms_polygon	CATENARY, CRANE	n/a	n/a	<polygon> type obstacles (moving obstacles)	